

CLAIMS

- 1 1. A solution for preserving a copper surface of an
2 electronic module, the solution containing at least one
3 compound selected from the family of the azoles,
4 characterized in that it further comprises a zinc salt.
- 1 2. The solution of claim 1 wherein the at least one
2 compound selected from the family of the azoles is
3 BenzoTriAazole (BTA).
- 1 3. The solution of claim 2 wherein the zinc salt is zinc
2 acetate $Zn(CH_3COO)_2 \cdot 2H_2O$.
- 1 4. The solution of claim 3 further containing an organic
2 acid and a compound selected from the family of the amines
3 as complexing agents.
- 1 5. The solution of claim 4 wherein the organic acid is
2 acetic acid CH_3COOH .
- 1 6. The solution of claim 4 wherein the compound selected
2 from the family of the amines is TriEthanolAmine (TEA).
- 1 7. The solution of claim 3 having a pH between 5 and 8.
- 1 8. The solution of claim 7 wherein the pH is controlled
2 by the addition of ammonia.
- 1 9. The solution of claim 4 wherein the amount of the at
2 least one compound selected from the family of the azoles
3 is in the range 0.001-0.5 mol, the amount of zinc acetate

4 is in the range 0.1-1 mol, the molecular ratio amine/zinc
5 salt is less than 3 and the molecular ratio organic
6 acid/zinc salt is less than 4.

1 10. A method for protecting a copper surface comprising
2 the step of immersing the copper surface in the solution of
3 claim 1.

1 11. A method for soldering a metallic component on a
2 copper surface with a tin base alloy, the method comprising
3 the step of pretreating the copper surface with the
4 solution of claim 1.

1 12. An electronic device having electronic components
2 soldered with the soldering method of claim 11.

1 13. A method for manufacturing a printed circuit board
2 wherein the electronic components are soldered on the
3 copper (Cu) substrate using a tin (Sn) solder alloy, the
4 method comprising the soldering method of claim 11.

1 14. The method of claim 13 wherein the Sn alloy is lead
2 (Pb) free.

1 15. The method of claim 14 wherein the lead free alloy is
2 a tin-bismuth (Sn-Bi) alloy.

1 16. A printed circuit board manufactured using the method
2 of claim 13.